

material need not be removed and replaced, the lot may be accepted at an adjusted unit price as determined by the Engineer. If the pavement mean air voids exceed the tolerances established in the Air Voids Acceptance Schedule – Table 12, remove and replace the materials at the Contractor’s expense.

If the Engineer determines that the material is not acceptable to leave in place, remove and replace the materials at the Contractor’s expense.

## **Section 401—Cold Mix for Patching**

### **401.1 General Description**

This Specification contains requirements for a mixture of mineral aggregates and cutback asphalt suitable for short periods of stockpiling.

#### **401.1.01 Definitions**

General Provisions 101 through 150.

#### **401.1.02 Related References**

##### **A. Standard Specifications**

Section 800—Coarse Aggregate

Section 802—Aggregates for Asphaltic Concrete

Section 820—Asphalt Cement

Section 821—Cutback Asphalt

Section 824—Cationic Asphalt Emulsion

##### **B. Referenced Documents**

ASTM D 396

ASTM D 975

QPL 70

#### **401.1.03 Submittals**

General Provisions 101 through 150.

### **401.2 Materials**

Ensure that materials meet the following specifications:

| <b>Material</b>                         | <b>Section</b> |
|---|----------------|
| Cationic Asphalt Emulsion, CMS-2        | 824.2.01       |
| Cutback Asphalt, Grade MC-250           | 821.2.01       |
| Asphalt Cement, PG 64-22                | 820.2.01       |
| Liquifier, No. 2 Fuel Oil               | ASTM D 396     |
| Liquifier, No. 2 Diesel Fuel Oil        | ASTMD 975      |
| Fine Aggregate for Asphaltic Concrete   | 802.2.01       |
| Coarse Aggregate for Asphaltic Concrete | 802.2.02       |

For a list of sources, see QPL 70.

##### **A. Substitutions**

Instead of using MC-250 as a bituminous material, a mixture of PG 64-22 and either No. 2 heating fuel oil or No. 2 diesel fuel oil may be used in a blend of 67 percent PG 64-22 and 33 percent fuel oil. Blend these materials before mixing or add them separately when mixing.

**B. Composition of Mixtures**

Ensure that bituminous cold mixtures are uniform mixtures of aggregate, asphaltic material and, if required, mineral filler.

Ensure that the constituents are proportioned to produce mixtures that meet the requirements given in the Composition Table. Group I aggregate, Group II aggregate, or a blend of both may be used.

Aggregate meeting gradation the requirement for size 89 aggregate in Section 800 may be used instead of composite blends, at the Engineer's discretion.

| <b>Composition Table for Cold Mixes for Bituminous Plant Mixtures for Patching</b> |                          |                                   |                                   |
|--|--------------------------|-----------------------------------|-----------------------------------|
| <b>Cold Mix Type</b>   | <b>12.5 mm Superpave</b> | <b>9.5 mm Superpave (Level B)</b> | <b>9.5 mm Superpave (Level A)</b> |
| Gradation Requirements, Percent Passing, by Weight                                 |                          |                                   |                                   |
| 3/4 in (19 mm) sieve   | 100                      |                                   |                                   |
| 1/2 in ((12.5 mm) sieve  | 90 to 100                | 100                               | 100                               |
| 3/8 in (9.5 mm) sieve  | 70 to 89                 | 90 to 100                         | 90 to 100                         |
| No. 4 (4.75 mm) sieve  |                          | 55 to 75                          | 65 to 85                          |
| No. 8 (2.36 mm) sieve  | 34 to 39                 | 42 to 47                          | 53 to 58                          |
| No. 50 (300 µm) sieve  | 8 to 27                  | 8 to 27                           | 10 to 35                          |
| No. 200 (75 µm) sieve  | 3.5 to 7.0               | 4 to 7                            | 4 to 7                            |
| Percent Residual AC, by Weight of Total Mixture                                    | 4.3 to 6.5               | 4.3 to 7.0                        | 4.5 to 7.0                        |

**C. Mixing Temperature**

The recommended temperatures for aggregate and bituminous materials to ensure proper mixing are as follows:

|            |                         |
|------------|-------------------------|
| CMS-2      | 140-160 °F (60-70 °C)   |
| PG 64-22   | 300-350 °F (150-175 °C) |
| MC-250     | 100-225 °F (40-105° C)  |
| Aggregates | 200-225 °F (95-105 °C)  |

**401.2.01 Delivery, Storage, and Handling****A. Stockpiling the Mixture**

1. Place the finished mixture in small stockpiles to allow the mixture to cure properly.
2. After curing, stockpile the mixture in one large stockpile if possible.
3. Ensure that the stockpiling area is clean and well drained.

**401.3 Construction Requirements**

General Provisions 101 through 150.

**401.3.01 Personnel**

General Provisions 101 through 150.

**401.3.02 Equipment**

General Provisions 101 through 150.

**401.3.03 Preparation**

General Provisions 101 through 150.

**401.3.04 Fabrication**

General Provisions 101 through 150.

**401.3.05 Construction**

General Provisions 101 through 150.

**401.3.06 Quality Acceptance**

General Provisions 101 through 150.

**401.3.07 Contractor Warranty and Maintenance**

General Provisions 101 through 150.

**401.4 Measurement**

Cold mix will be measured by weight in tons (megagrams) according at Subsection 109.01, "Measurement and Quantities," and no deductions will be made for the asphalt cement or liquifier.

**401.4.01 Limits**

General Provisions 101 through 150.

**401.5 Payment**

Cold mix will be paid for at the Contract Unit Price per ton (megagram). Payment is full compensation for materials costs, production costs, and shall be FOB the stockpile at the plant.

Payment will be made under:

|              |          |                    |
|--------------|----------|--------------------|
| Item No. 401 | Cold mix | Per ton (megagram) |
|--------------|----------|--------------------|

**401.5.01 Adjustments**

General Provisions 101 through 150.

## **Section 402—Hot Mix Recycled Asphaltic Concrete**

**402.1 General Description**

This work includes producing and placing hot mix recycled asphaltic concrete that incorporates reclaimed asphalt pavement (RAP), reclaimed asphalt shingles (RAS), virgin aggregate, hydrated lime, and neat asphalt cement.

**402.1.01 Definitions**

General Provisions 101 through 150.

**402.1.02 Related References****A. Standard Specifications**

Section 400—Hot Mix Asphaltic Concrete Construction

Section 800—Coarse Aggregate

Section 828—Hot Mix Asphaltic Concrete Mixtures

**B. Referenced Documents**

Guidelines for RAP Stockpile Approval

**402.1.03 Submittals****A. Certified Weight Tickets**

Notify the Engineer before removing RAP from a stockpile that belongs to the Department. Submit to the Engineer the certified weight tickets of materials removed from the stockpile.

**B. Affidavit**

Submit to the laboratory an affidavit stating the sources of stockpiled materials to be used on a State project. Include the following information in the letter:

- State project number